

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1 - 6. (Cancelled).

7. (previously presented). The apparatus of claim 17, wherein said visual display means includes a plurality of individual displays corresponding in number to the number of possible values of said state signal.

8. (previously presented). The apparatus of claim 17, wherein said visual display means includes an LCD device having a plurality of individually activatable units.

9. (previously presented). The apparatus of claim 17, comprising electrodes applied to the patient for deriving said heart potentials,
analog circuit means connected to said electrodes and including a preamplifier, an electronic filter and a main amplifier, and
digital circuit means including an A/D converter, a sample-and-hold stage, a memory which holds said normal distribution, and a microcontroller.

10. (previously presented). The apparatus of claim 17, wherein said microcontroller is adapted to generate a signal fed back to said preamplifier for controlling the gain thereof.

11. (previously presented). The apparatus of claim 17, wherein said microcontroller is adapted to generate a clock signal for controlling said A/D converter and said sample-and-hold stage.

12. (previously presented). The apparatus of claim 17, comprising a battery for powering said analog and digital circuit means, and means for generating a warning signal if the voltage of said battery falls below a predetermined value.

13. (previously presented). The apparatus of claim 17, further comprising means for actuating said warning signal generating means if said state signal assumes a critical value.

14. (previously presented). The apparatus of claim 17, wherein warning signal generating means includes a visual display adapted to operate in a flash mode.

15. (previously presented). The apparatus of claim 17, wherein warning signal generating means includes an audio signal generator.

16. (currently amended) A method for detecting atrial fibrillation, comprising

- a) repetitively obtaining a plurality of groups of n successive RR intervals from a patient's heart potentials, n being a natural number greater than 1,
- b) defining a plurality of points in an n -dimensional space of numbers, each point representing one of said groups of n successive RR intervals, to form a characteristic distribution of said points, and calculating a virtual electronic two-dimensional scatter plot based on said RR intervals,
- c) comparing said characteristic distribution with at least one normal distribution derived from a healthy heart by electronically checking said scatter plot for the presence of a prescribed geometrical point structure, and
- d) generating at least one state signal representing the state of the heart from step c), said state signal actuating a visual display ~~of state signal(s)~~ and being capable of assuming at least three values representative of at least three degrees of deviation of said characteristic distribution from said normal distribution.

17. (currently amended) An apparatus for detecting atrial fibrillation by the

method of claim 16, comprising

- a) means for repetitively obtaining a plurality of groups of n successive RR intervals from a patient's heart potentials, n being a natural number greater than 1,
- b) means for defining a plurality of points in an n -dimensional space of numbers, each point representing one of said groups of n successive RR intervals, to form a characteristic distribution of said points and calculating a virtual electronic two-dimensional scatter plot based on said RR intervals,
- c) means for comparing said characteristic distribution scatter plot with at least one normal distribution scatter plot derived from a healthy heart by electronically checking said virtual scatter plot for the presence of a prescribed geometrical point structure, and
- d) means for generating a state signal representing the state of the heart from said means c), said state signals observable on a visual display on said apparatus and being capable of assuming at least three values representative of at least three degrees of deviation of said characteristic distribution from said normal distribution.